Work Order ID December-21-11 9:28:			*77	764*	<u> </u>	Y		* *	$\sim$	Page	1
<b>Revision ID:</b> U/R	748-101 lbe Installation, High Fwd		Accept	*N900	<u>040</u>	100	<b>)</b> * 5	Setup Stä	1.71	S1* S2*	To common the common to the co
Start Date: 21/12/2 Required Date: 13/01/2 Reference:	• •	*1* *1*		Cust Item I Customer:	<b>D:</b>					•	
	ess Plan: M.C. J	· ·			ate:		ŀ	Run Sta Sto	!/	R1* R2*	Mother.
Sequence ID/ Work:Center ID	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp	···
Draw Nbr	Revision Nbr										
D350-748-141	F U/R	<i>*</i>									
*1.00 *  *1.00*  Document Control	DOCUMENT CONTRO <b>Memo</b> Photocopy b	oL bluefile & type labels per	0.00 (000 RDD350; 48-101	CHG002							
*110* *110* CNC Bend 1 CNC Delta 100 Bender	BENDING MACHINE - <b>Memo</b> Bend tube a Folio FT	CROSSTUBES s per Dwg D350-748-141	0.00 0.00 using CNC bender progr	am D350F and				_S,	AD I	2-04	-03
120 *120* QC	QC15- Crosstube Dimen	sional Check	0.00	6	P12.6	4.p.	<b>(</b> )				

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W/O:		WORK ORDER CHANGES	•	• .		•	
DATE	STEP	PROCEDURE CHANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
						. =	

Part No:		_ PAR #:	Fault Category:	NCR: Yes No	DQA:	Date:
	Resolution:		Disposition:	QA: N/C Closed	:	Date:

NCR:			WORK OR	DER NON-CONFORMANC	E (NCR)			
DATE	STEP	Description of NC Section A	Initial Chie	Corrective Action Section B  Action Description Chief Eng	Sign &	Verification Section C	Approval Chief Eng	Approval QC inspector
12.411	114	Tube bent high	11	Teo high to trim  SCRAP AP2.0411	205.23	12/0123	418/23 12/05/23 25/2042	· Scholes
								<b>₹</b>

Work Ord				*777	764*							Page 2
	D350-748-10 U/R Crosstube Inst	01 allation, High Fwd		Accept	*N900	040	100	<b>)</b> *	Setup	Start Stop	*N *N	S1* S2*
Start Date: Required Date: Reference:	21/12/2011 13/01/2012	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item 1 Customer:	ID:						
Approvals:		nn:		Tooling: SPC (Y/N):		ate:		F	Run ∙	Start Stop	*N *N	R1* R2*
Sequence ID/ Work Center II	0	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Rej Qty		Reject Number	Insp. Stamp
*125* HandFXtube P		***Stress re	osstube as per QSI010 4.3	0.00	v 0+0192						104/k	748-141F
127 * <b>1</b> 27*		QC6- Inspect dimensions	to drawing	0.00	Cras			4	11	PHO	6	
QC Quality Control		Memo :		0.00	SCRAP, T	30 H161 UY.N	4					

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W/O:			WORK ORDER CHANGES										
DATE	STEP	PRO	CEDURE CHAN	IGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector				
· · · · · ·													
Part No	:	PAR #:	Fault Categ	ory:	NCR: Yes	No <b>DQ</b>	A:	_ Date: _					
	R	esolution:	Disposition	:	QA: N/C CI	osed:		Date: _					
NCR:		\	WORK ORDE	R NON-CONFORMA	NCE (NCF	3)	-						
		Description of NC		Corrective Action Section		Verific	cation	Approval	Approval				
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign 8 Date		on C	Chief Eng	QC Inspector				
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									1				
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·Work Ord	ler ID 77764
December-21-	11 9:28:19 AM
Item ID:	D350-748-101
Revision ID:	U/R
Item Name:	Crosstube Installation, I

## \*77764\*

Page 3

December-21-1	1 9:28:19 AN	М			\						
Item ID: Revision ID:	D350-748-1 U/R			Accept	*N900	040	100	ን* ፡	Setup Sta	IV	S1*
Item Name:	Crosstube Ins	tallation, High Fwd							510	<sub>b</sub> *N	S2*
Start Date:	21/12/2011	Start Qty: 1.00	*1*		Cust Item 1	ID:					
Required Date: Reference:	: 13/01/2012	Req'd Qty: 1.00	*1*		Customer:						
Approvals:	Process Pla	an:	Date:	Tooling:	D	ate:		F	Run Sta	1/1	R1*
	QC:		Date:	SPC (Y/N):	D	ate:	<del></del>		Sto	*N	R2*
Sequence ID/ Work Center II	D	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
		Crosstubes		0.00							
*130* Crosstubes		Memo		0.00							
Crosstubes		1-Drill Tub	e as per Dwg D350-748-1 rill table as per QSI 010	41 Using DT8876 A,B &C	Drill Jigs,						
		2-Deburr									
		3-Engrave I	Part # and Batch # as per l	Dwg D350-748-141							
		4-Remove a	all marks from tube within	limits of D350-748-141							
		5- Apply a I	light coat of LPS3 on the Batch:	interior of tube							
140 *1 <b>4</b> 0*		QC5- Inspect part comp	leteness to step on W/O	0.00							
QC		Memo		0.00							<del></del>
Quality Control		CHECK 10	DEG HOLES WITH DT8	8876E (EUROCOPTER CL	AMP)						

### **Dart Aerospace Ltd**

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W/O:		WORK ORDER CHANGES		•		+	
DATE	STEP	PROCEDURE CHANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
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Part No:				No DQ			

NCR:	WORK ORDER NON-CONFORMANCE (NCR)									
		Description of NC		Corrective Action Section B		Verification	Approval Chief Eng	Approval QC Inspector		
DATE	STEP	Description of NC Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section C				
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						_				

Work Order ID 77764  December-21-11 9:28:19 AM			*77764*									Page 4
Item ID: Revision ID: Item Name:	D350-748-10 U/R Crosstube Inst	allation, High Fwd		Accept	*N900	)040	100	<b>)</b> *	Setup	Start Stop	*N:	S1*
Start Date: Required Date: Reference:	21/12/2011	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item Customer:						"Ni	
Approvals:	Process Pla	n:	Date:	Tooling:	D	ate:	_		Run	Start	*NI	R1*
	QC:		Date:	_ SPC (Y/N):	D	ate:	···			Stop	*NI	R2*
Sequence ID/ Work Center II 150	D	Operation Description Outsource process-Cadpi	late per QSI017 4.1.9.1	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	t Rej Qty		Reject Number	Insp. Stamp
*150* Outsource3 Outsource process -	Cad plate	Memo Issue P/O: Stress relief Magnetic Pa Cadium Plat Embrittle rel Possibe Sup	at 375° for 5 hours urticle Inspect per ASTM te per AMS-QQ-P-416B, 6 tief at 375° for 8 hours, Cl plier: Southwest United In ficate of Conformity is at	Class 1, Type 2 hromate Treat idustries								
*160 *160* Packaging Packaging		Receive & Inspect for Da  Memo  Ensure certif	amage & Mat'l Certs ficate of conformity is atta	0.00 0.00 ached						[c,	12/4/5	~(L)
<sup>170</sup> <b>*17∩</b> *		QC5- Inspect part comple	eteness to step on W/O	0.00								

0.00

Memo

Quality Control

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W/O:	•	WORK ORDER CHANGES											
DATE	STEP	PRO	PROCEDURE CHANGE						Approval Chief Eng / Prod Mgr	Approval QC Inspector			
Part No	•	PAR #:	Fault Cat	egory:	_ NCR: Y	es N	o <b>DQA</b>	·:	_ Date: _				
	R	esolution:	Dispositi	on:	_ QA: N/C	Clos	sed:		Date:				
NCR:		1	WORK ORDER NON-CONFO										
DATE	STEP	Description of NC Section A	Initial Chief Eng	Corrective Action Sect Action Description Chief Eng	Section B  Sign & Date				Approval Chief Eng	Approval QC Inspector			
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Work Ord			*77764*								Page 5
Item ID: Revision ID: Item Name:	D350-748-10 U/R Crosstube Inst	01 tallation, High Fwd		Accept	*N900	<u>040</u>	100	<b>)*</b> s	Setup Sta	1.71	S1* S2*
Start Date: Required Date: Reference:	21/12/2011 13/01/2012	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item J Customer:	D:					
Approvals:	Process Pla	in:	Date:	Tooling:	D	ate:		F	Run Sta	irt *N	R1*
	QC:		Date:	SPC (Y/N):		ate:			Ste	<sup>op</sup> <b>*N</b>	R2*
Sequence ID/ Work Center II	D	Operation Description		Set Up/ Run Hours	Tool ID	Tool#	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
*180*		SprayPaint									
SprayPaint		Memo		0.00							-
Spray Painting			de crosstube as per QSI side of Tube as per Dar								
<sup>190</sup>		QC14- Inspect Spray Pai	nt	0.00							
QC		Мето		0.00							
Quality Control		Then, Wrap i	n plastic bag to protect	from scratches							

200

\*200\*
Crosstubes

Crosstubes

Crosstubes

**200\*** 

Memo

1-Install Ground wire Insert, then insert screw and washer

2-Install Abraision strips as per Dwg D350-748-141 & QSI 035.

3-Install supports Using Dt8876 as per Dwg D350-748-141, Torque to 60-80 IN-

0.00

0.00

LBS

## **Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES										
DATE	STEP	PRO		у	Date Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector					
Part No	:	PAR #:	Fault Cat	egory:	_ NCR:	Yes N	lo DQA:	Date: _				
	R	lesolution:	Dispositi	on:	QA: N	C Clo	sed:	Date: _				
NCR:			NORK OR	DER NON-CONFORM	ANCE (	NCR)						
DATE	STEP	Description of NC Section A	Initial Chief Eng	tion B	ign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector				
TT												

<b>Work Order ID 77764</b> December-21-11 9:28:19 AM				*77764*								Page (
Item ID: D350-748-101 Revision ID: U/R Item Name: Crosstube Installation, High Fwd Start Date: 21/12/2011 Start Qty: 1.00				Accept	*N900	<u>040</u>	100	)*	Setup	Start Stop	*N *N	S1* S2*
Required Date: 13/01/2012 Req'd Qty: 1.00 Reference:		*1* *1*		Cust Item I Customer:	D:					•		
Approvals: Process Plan:QC:		n:	Date:	Tooling: SPC (Y/N):	Date:Date:				Run	Start Stop	*N *N	R1* R2*
Sequence ID/ Work Center II	D	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Rej Qty		Reject Number	Insp. Stamp
210 *210* QC Quality Control		QC5- Inspect part compl  Memo	eteness to step on W/O	0.00								
<sup>220</sup> * <b>27</b> ** ** ** ** ** ** ** ** ** ** ** ** **		Pick Kit		0.00								
Packaging Packaging		Мето		0.00					-			
230		QC4- 100% Inspect kits	for completeness	0.00								

0.00

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Quality Control

### **Dart Aerospace Ltd**

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W/O:			WC	RK ORDER CHANGI	ES		*		Je i				
DATE	STEP	PRO	OCEDURE CHA	NGE		Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector			
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Re													
		PAR #:	Fault Cate	gory:	NCR: Yes No DQA: Date:								
		esolution:	Disposition	າ:	_ QA:	N/C Clo	sed:	· · · · · · · · · · · · · · · · · · ·	Date: _				
NCR:			WORK ORDI	ER NON-CONFORMA	NCE	(NCR)							
DATE	STEP	Description of NC Section A	Initial	Corrective Action Section Action Description	on B	Sign &			Approval Chief Eng	Approval QC Inspector			
			Chief Eng	Chief Eng		Date							

	Work Order ID 77764 December-21-11 9:28:19 AM			*777	764*						Page 7
Revision ID: Item Name:	21/12/2011	allation, High Fwd Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*	Accept	*N900  Cust Item I  Customer:		100	<b>)</b> * s	Setup Sta	1.7	S1* S2*
Approvals:	Process Pla	n:	Date:	Tooling: SPC (Y/N):		ate:		ŀ	Run Sta Sto	" [ <b>\</b> ]	R1* R2*
Sequence ID/ Work Center II 240 *740* Packaging Packaging	•	Operation Description  Packaging  Memo Identify and Location: PPP Rev:	pack for shipping as per	Set Up/ Run Hours 0.00 0.00 PPP D350-748-101	Tool ID	Tool#	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
250 *250* QC		QC21- Final Inspection -	Work Order Release	0.00							-

Memo

Quality Control

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## **Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES											
DATE	STEP		OCEDURE CH	Ву	Date Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector						
R		PAR #:	Fault Cat	tegory:	NCR: Yes	•							
	R	lesolution:	Disposit	ion:	QA: N/C CI	osed:	Date: _	····					
NCR:		\	WORK ORI	DER NON-CONFORMA	NCE (NCF	R)							
DATE	STEP	Description of NC Section A	Initial Chief Eng	Corrective Action Section Action Description Chief Eng	Sign 8		Approval Chief Eng	Approval QC Inspector					
			Office Ling	Office Eng	Date								
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### , Picklist Print

December-21-11 9:28:23 AM

Work Order ID: 77764

\*77764\*

Parent Item:

D350-748-101

\*D350-748-101\*

Parent Item Name: Crosstube Installation, High Fwd

Start Date: 21/12/2011

**Required Date:** 13/01/2012

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP Rev:A New Issue 06-07-05 JLM

IPP Rev:B Update qty of MS21042L5 06-09-12 KJ

IPP Rev:C Rev B 07-11-15 DD

IPP Rev D Combined manufacturing 08.04.02 EC verified by: DD IPP Rev:E 08-06-24 revD as per dwg DD verified by:EC IPP Rev:F

10.08.04 added QSI010 4.3 DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D350-748-141TRN		Manufactured	No			110	Each	0.0000	1	1			
*D350-748 Crosstube Turning Detail	R-141TF	₹N*				37	14670		**	SA	)	12-0	4-03
ALS4-1032-225		Purchased	No			200	Each	1,348.000	i	1			
*AI S4-10	32-225*								**				
				Location	1	Loc	<u>Oty</u>	Loc Code					
				ST281			1348						
					108696		199		_				
					110768		62		_		•		
					118386		858		_				
AN960JD10	NAS1149D0363J	Durchagad	No		118966	200	229 Each	0.0000	1	1			
*AN960.IF		ruiciiaseu	140			200	Lacii	0.0000	**	1 			
D2856-400		Manufactured	No			200	f	200.2721	1.181	1.243158			
*D2856-40 Abraison Strip	<b>7</b> 0*								**				
				Location	1	Loc	<u>Qty</u>	Loc Code					
				ST409		200.	2721						
					63735	0.	6696						
i.					68076	0.	3149		_				

21.66

177.6276

68076 71164

73491

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W/O:			W	ORK ORDER CHA	NGES				. <b></b>	
DATE	STEP	PR	OCEDURE CH	IANGE		Ву	Date 0	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
<u>,</u>										
Part No	:	PAR #:	Fault Ca	tegory:	NC	R: Yes	No DQA:		_ Date: _	
		esolution:	Disposit	ion:	QA	: N/C CId	osed:		Date: _	
NCR:			WORK OR	DER NON-CONFO	RMANCI	E (NCR	)			
DATE	I _	Description of NC		Corrective Action	Section B		Verificati	ion	Approval	Approval
	STEP	P Description of NC Section A	<b>Initial</b> Chief Eng	Action Descript Chief Eng	ion	Sign & Date	Section (		Chief Eng	QC Inspector
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Page 2

December-21-11 9:28:23 AM								·	
Work Order ID: 77764		*7	7764*						
Parent Item: D350-748-101		*[	350-748-	101*			•		
Parent Item Name: Crosstube Installat	ion, High Fwd	•	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			S	tart Date: 2	21/12/2011	Required Date: 13/01/2012
						5	Start Qty:	1.00	Required Qty: 1.00
D3502-1	Manufactured	No		200	Each	23.0000	2	2	
*D3502-1*							**		
			Location	<u>Lo</u>	c Oty	Loc Code			
			ST063		23				_
			72129		3				
MS21920-20		2.7	73419	200	20		_		<del></del>
	Purchased	No		200	Each	60.0000	2	2	
*MS21920-20*							**		
Clamp (per MIL-DTL-8783C)					14 1	, <b>.</b>			
			<u>Location</u>	Lo	c Oty	Loc Code			
			LG050		60				_
			116799		10				<del></del>
MS27039-1-10	Dumahasad	No	119386	200	50 Each	41.0000	1		_
	Purchased	190		200	Each	41.0000		1.	
*MS27039-1-10*							**		

\*MS27039-1-10\*

<b>Location</b>	Loc Oty	Loc Code	
ST291	41		
119307	3		
119531	38		

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W/O:		WORK ORDER CHA			WORK ORDER CHANGES						
DATE			PROCEDURE CHANGE By Date						Approval QC Inspector		
Part No	:	PAR #:	Fault Cate	egory:	_ NCR	: Yes N	o <b>DQA</b> :	Date: _			
	Re	esolution:	Disposition	on:	QA:	N/C Clos	sed:	Date: _			
NCR:			WORK ORE	ER NON-CONFORM	ANCE	(NCR)					
DATE	STEP	Description of NC	Initial	Corrective Action Section Description	tion B	Sign &	Verification		Approval		
		Section A	Chief Eng	Chief Eng		Date	Section C	Chief Eng	QC inspector		
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Picklist Print         December-21-11 9:28:23 AM         Work Order ID: 77764       *77764*         Parent Item: D350-748-101       *D350-748-101*         Parent Item Name: Crosstube Installation, High Fwd       Start Date: 21/12/2011 Required Date: 13/01         Start Qty: 1.00       Required Qty: 1.00	•
Work Order ID: 77764 *77764*  Parent Item: D350-748-101 *D350-748-101 *D350-748-101*  Parent Item Name: Crosstube Installation, High Fwd  Start Qty: 1.00 Required Qty: 1.00	Page 3
Parent Item: D350-748-101 *D350-748-101 *D35	l age 3
Parent Item: D350-748-101 *D350-748-101 *D350-748-101 *D350-748-101 *Parent Item Name: Crosstube Installation, High Fwd *D350-748-101 *Start Qty: 1.00 Required Qty: 1.00	
Parent Item Name:Crosstube Installation, High FwdStart Date: 21/12/2011Required Date: 13/01Start Qty: 1.00Required Qty: 1.00	
Start Qty: 1.00 Required Qty: 1.00	2012
•	2012
AN4-41A Purchased No 220 Each 285,0000 8 8	
1 til billiased 200,0000 6 6	
*AN4-41A* Bolt ***	
<u>Loc Qty</u> <u>Loc Code</u>	
ST360 285	
115108 3	
115705 7	
117619 50	
117795 25	
118451 50	
116636 50	
AN4-6A Purchased No. 220 Feeb 4120,000 16	
*AN4-6A*	
Location Loc Qty Loc Code	
ST356 4130	
119017 4130	
AN5-32A Purchased No 220 Each 231.0000 4 4	
*AN5-32A* **	
<u>Location</u> <u>Loc Oty</u> <u>Loc Code</u>	
ST339 231	

NAS1149D0463J Purchased

Washer

AN960JD416

220

6

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100

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32

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32

118422

118628

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119862

No

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Part No	•	PAR #:	Fault Ca	legory:	NCF	R: Yes	No DQA:	Date: _	
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NCR:			WORK ORI	DER NON-CONFOR	RMANCE	(NCR	)		
	0750	Description of NC		Corrective Action	Section B		Verification	n Approval	Approval
DATE	STEP	Section A	Initial Chief Eng	Action Descripti Chief Eng	ion	Sign & Date	Section C	Chief Eng	QC Inspector
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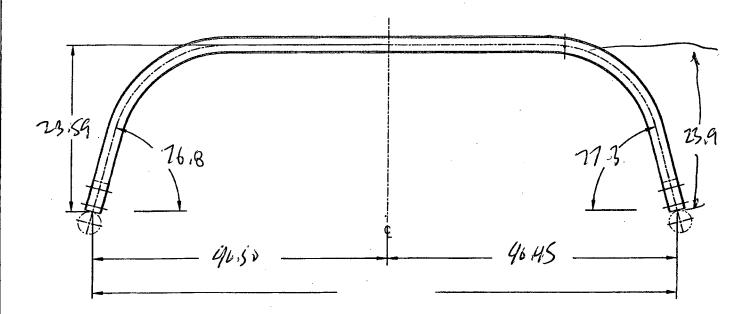
Picklist Print  December-21-11 9:28:23 AM									Page
Work Order ID: 77764  Parent Item: D350-748-101  Parent Item Name: Crosstube Installati	on, High Fwd		764* 850-748-	101*			art Date: 2		Required Date: 13/01/2012 Required Qty: 1.00
AN960JD516 NAS1149D0563J	I. Dunahari J	No		220	Eash		-		Required Qty: 1.00
*AN960JD516 NAS1149D0563J *AN960.ID516* Washer	Purchased	NO		220	Each	0.0000	* <b>*</b>	8	
*D3500-1 *D3500-1*	Manufactured	No		220	Each	4.0000	4 **	4	
Jaudic			<u>Location</u>	Lo	c Qty	Loc Code			
			ST424 70695		4 4				_
D3501-1 *\(\mathbb{T}\)35\(\mathbb{T}\)-1* Bushing	Manufactured	No	, , ,	220	Each	396.0000	16 **	16	_
Justing			Location	Lo	c Oty	Loc Code			
			ST063		396				
			67757 70682		4 100				_
			73391		85				
MS21042L4		<b>3.</b> 7	74866	220	207	0.000			_
*MS210421 4*	Purchased	No		220	Each	9,077.000	24 **	24	
			Location	<u>Lo</u>	c Oty	Loc Code			
			ST300		9077				_
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			117601 118451		342 133				
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### **Dart Aerospace Ltd**

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DART AEROSPACE LTD	Work Order:	77764
Description: Crosstube High Fwd (AS350/355)	Part Number:	D350-748-101
Inspection Dwg: D350-748-141 Rev: F		Page 1 of 1

Required Dimension	Min	Max
Height	23.13	23.37
1/2 Span	40.78	41.02
Angle	75	77
Total Span	81.56	82.04



	Comments	
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	CPAP UM2-64.11	

QC15 Inspection	
Date	

Rev	Date	Change	Revised by	Approved
A 07.02.	07.02.06	New Issue	KJ/JM	
В	10.08.23	Dwg Rev updated	KJ 1/	1.
С	11.11.07	Dwg Rev updated	KJ 🔣	M

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Item	Qty -141	Part Number	Description
1	X	D350-748-141	CROSSTUBE ASSEMBLY (AS 350/355 HIFWD)
2	1	D6015-125	CROSSTUBE (OR D6017-115)
3	2	D3502-1	SUPPORT
4	2	D2856-400-710	ABRASION STRIP
5	1	AELS-1032-225	INSERT
6	1	NAS1149D0363J	WASHER (OR AN960JD10)
7	2	MS21920-20	CLAMP (PER DART SPEC. M-MS21920-20)
8	1	MS27039-1-10	SCREW

#### **GENERAL NOTES:**

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1) MATERIAL: MANUFACTURED FROM D6015-125 OR D6017-115

FINISHED LENGTH = 110,270±0.06

2) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2 CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2 PAINT OUTSIDE PER DART QSI 005 4.2

- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: DART PART NUMBER "D350-748-141" AND BATCH NUMBER ON INSIDE OF CUFF PER DART QSI 044 6.4 (VIBRATING STYLUS)
- WEIGHT: 30.45 lbs
- PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.297 HOLE.
- BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALY, TRANSITION SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.

- 11) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING. ACCEPTABLE TO VERIFY TENSILE STRENGTH BY HARDNESS TEST PER ASTM E18 TO 40-45 HRC.
- 12) INSTALL D2856-400-710 ABRASION STRIPS WITH A GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 13) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 14) TORQUE CLAMPS 60 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

15) MAX TWIST AFTER BENDING: WITH XTUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN CUFF HEIGHTS FROM THE SURFACE MAY BE NO LARGER THAN 0.25 (ZN C1-3).

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SUBJECT TO AMENDMENT

W. - ROUT NOTICE

WORK ORDER M.L. 5

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UNDER REVIEW



DESIGN	1 00	DART AFROOD		TD
REV.		DESCRIPTION	BY	DATE
A	NEW ISSUE	CP	06.03.31	
. В	ADD D6017-115 & PF	CP	06.06.30	
C	ADD CAD PLATING	CP	06.08.14	
D		D CAD PLATE AS MFD.	CP	06.10.31
. E	REVISE GENERAL N STANDARDS; RELC (ZN A6-3); TOLERAN	RF	09.09.30	
F	ADD HRC TEST OP TWIST LIMIT (A8-1, ( (C8-1), STOCK DIM	СР	10.11.23	

DESIGN	92	DART AEROSPACE LTD			
DRAWN	97	HAWKESBURY, ONTARIO, CAN	ADA		
CHECKED	<u> </u>	DRAWING NO.	REV. F		
MFG. APPR.	E	D350-748-141 s	HEET 1 OF 4		
APPROVED	-1/2	TITLE	SCALE		
DE APPR.		CROSSTUBE (AS 350/355 HI FWD	) NTS		
DATE 10.1	1.23	COPYRIGHT © 2006 BY DART AEROSPACE THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS BUPPLIED ON THE EXPIRE NOT TO BE USED FOR AMY PURPOSE OR COPIED OR COMMUNICATED TO ANY OT			

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	R	esolution:	Dispositio	n:	_ QA	N/C CI	osed:		Date: _	
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DATE	STEP	Description of NC Section A	Corrective Action Initial Action Descri Chief Eng Chief Eng		cription Sign &		Verification Section C		Approval Chief Eng	Approval QC Inspector
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77764.

D3502-1 SUPPORT MS21920-20 CLAMP 2 PL D D2856-400-710 ABRASION STRIP D350-748-141 BENT TUBE TO ABRASION STRIP С INSTALL AFTER FINISH: AELS-1032-225 INSERT NAS1149D0363J WASHER MS27039-1-10 SCREW D350-748-141 ASSEMBLY DETAIL UNDER REVIEW В Q 11.07.11 MS21920-20 CLAMP, REF D3502-1 SUPPORT 12 D2856-400-710 GAP REF ABRASION STRIP REF DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DESIGN DRAWN CHECKED DRAWING NO. SECTION A-A D4-2 REV. F D350-748-141 MFG. APPR. SHEET 2 OF 4 APPROVED TITLE SCALE CROSSTUBE (AS 350/355 HI FWD)

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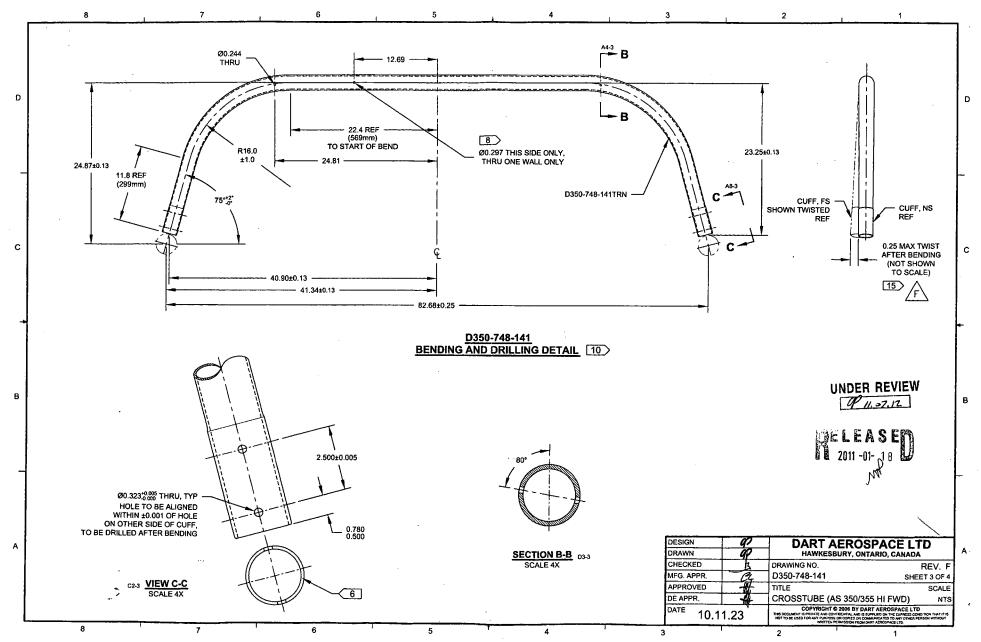
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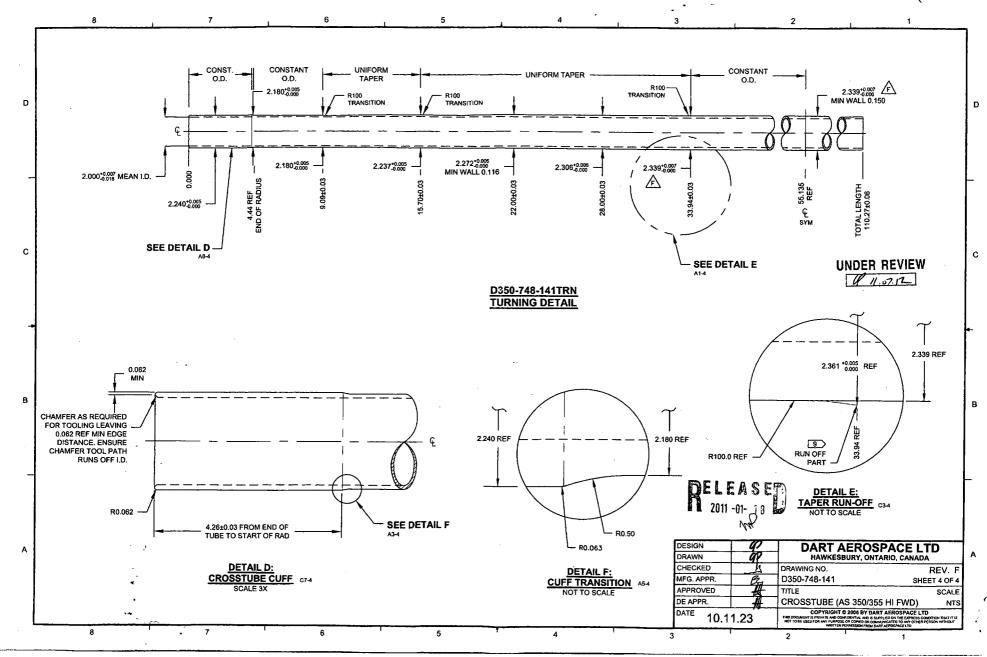
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DRAWING NO.	MILE		, REV. F	DART	<b>AEROSPACE LTD</b>	D.E.O. NO	).	SHEET NO.	SCALE
D350-748-141	◆ CROSSTUB	BE (AS 350/355 HI	FWD)	ENGI	<b>NEERING ORDER</b>	D350-74	48-141 <sub>7</sub> -₹-1	SHEET 1 OF 1	NTS
DRAWN ()	7	CHECKED	γ	MFG. API	PR.	APPROVED	14	DE APPR.	_
DATE 12.04	4.02	DATE 12.04	1.03	DATE	12.04.95	DATE	12:04:03	DATE 12.04.0	3

**PURPOSE:** 

ADD A STRESS RELIEF OPERATION FOLLOWING BENDING

CHANGE:

ADD

10) AFTER BENDING: STRESS RELIEF AT 650°F ± 25°F FOR A MINIMUM OF 2 HRS.

AIR COOL TO AMBIENT TEMPERATURE

(REF. AMS2759/1E)

# METCOR INC. 549 BOUL. ARTHUR-SAUVÉ ST-EUSTACHE, QC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

### Certificat de Conformité Détaillé

Detailed Certificate of Compliance

BON DE TRAVAIL	CHARGEMENT
order	load
175005	1

CLIENT / customer 215
DART AEROSPACE . 1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to: DART AEROSPACE 1270 ABERDEEN HAWKESBURY

ON K6A 1K7

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	CODE DE TRAITEMENT mat'i heat code	NUMÉRO DE LOT
PO16638		Steel		<u>:</u>

### SPÉCIFICATIONS DU PROCÉDÉ

processing specifications

STRESS REL

SAE AMS 2759/1 REV.E

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ÉXIGENCE / requirement SPÉCIFICATIONS / specified TESTS EXÉCUTÉS / performed RÉSULTATS DE TESTS / results

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description	. 1
9	270	D350-748-101	
		(7) CROSS TUBE	
		(2) D350-748-201 CROSS TUBE	
		CONTENANT: 1 NIL	

Operation	Temp. specifiée Specified Temp	Temps de trempe Spécifié Specified Soak Temp	Atmosphere	Carbone Carbon Potential	Q-Media Q-Temp	Four # Furnace #	Date Départ Start Date	Heure d'entrée Time In	Heure de sortie Time Out	Date Complétée Date complete
1,00 CONT. INIT.	LAVAGE		si nécessaire							i.
2,00 PREPARING	COMPTAGE									1
3,00 STRESS RE		2 hrs	air			701				
4,00 FINAL INSP							04-05-2012			04-05-2012

#### **COMMENTAIRES / comments**

ALL THE HEAT TREATMENT PROCESSING PERFORMED ON THIS ORDER WAS ACCOMPLISHED USING HEAT TREATMENT EQUIPEMENT THAT MEETS THE REQUIREMENTS OF AMS 2759. ALL THE HEAT TREATMENT OPERATIONS WERE ACCOMPLISHED IN ACCORDANCE WITH THE REQUESTED/REQUIRED HEAT TREATMENT SPECIFICATION AND ALL REQUIRED VERIFICATIONS TEST HAVE BEEN PERFORMED AND DOCUMENTED. NO UNAUTHORIZED CHANGES OR DEVIATIONS TO REQUIRED HEAT TREATMENT SPECIFICATIONS OR PROCEDURES HAVE BEEN PERFORMED.

# METCOR INC. 560 BOUL. ARTHUR-SAUVÉ ST-EUSTACHE, QC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

### Certificat de Conformité Détaillé

Detailed Certificate of Compliance

	· · · · · · · · · · · · · · · · · · ·
BON DE TRAVAIL order	CHARGEMENT
order	load
175005	1

CLIENT / customer 215
DART AEROSPACE
1270 ABERDEEN .
HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to: DART AEROSPACE 1270 ABERDEEN HAWKESBURY

ON K6A 1K7

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APPROUVÉ par / Approved by:	MW	740	Name	16	)		05
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Metcor Inc.

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EON DE TRAVAIL CHARGENESS 1

order load

175005

<u>GLENT/oustomer</u> 215 1000 herospace 1010 aberdeen Hawkesbury

ON K5A 1K7

<u>UVRÉ À / shipped to:</u> DART AEROSPACE 1270 ABERDEEN HAWKESBURY

ON K6A 1K7

DOWNSHOOD DUICUENT oursemer po	CUSTOMER Shipper No.	MATÉRIEL material	CODE DE TRAITEMENT matil heat code	NUMÉRO DE LOT lot number					
		Steel							

### <u>SPÉCIFICATIONS DU PROCÉDÉ</u>

processing specifications

STRESS REL

SAE AMS 2759/1 REV.E

EN GENCE / requirement | SPÉCIFICATIONS / specifiedTESTS EXÉCUTÉS / performed | RÉSULTATS DE TESTS / results

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COMMENTAIRES / comments

NSPECTEUR / inspector:

-17.

e (MEGOR)

DATE: 2012-04-05